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GB 0593722 A

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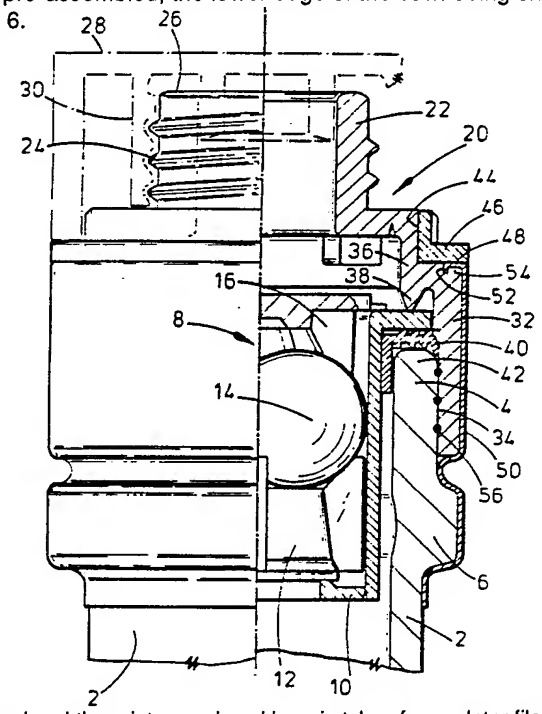
(54) Non-refillable device

(57) A non-refillable device comprises a one-way valve device 8 received in a tubular neck portion 4 of a container 2. An outlet pouring member 20 is provided on the neck portion 4, which comprises a pouring lip 26 to be closed by a cap 28. The member 20 also comprises a sleeve portion 32 which is bonded to the neck portion 4 so as to compress a sealing washer 40 and afford a liquid-tight seal. A metal cowl 50 is provided to conform to the contours of the sleeve portion 32 and to engage the container 2. Margins 48 of the cowl are secured to the member 2 by an ultra-sonic welding technique and the security of the weld is enhanced by the presence of a retaining ring 46. The container and sleeve are provided with grooves so adhesive forms ribs 6. The device is pre-assembled, the lower edge of the cowl being crimped after application to the container neck to conform with the ridge 6.



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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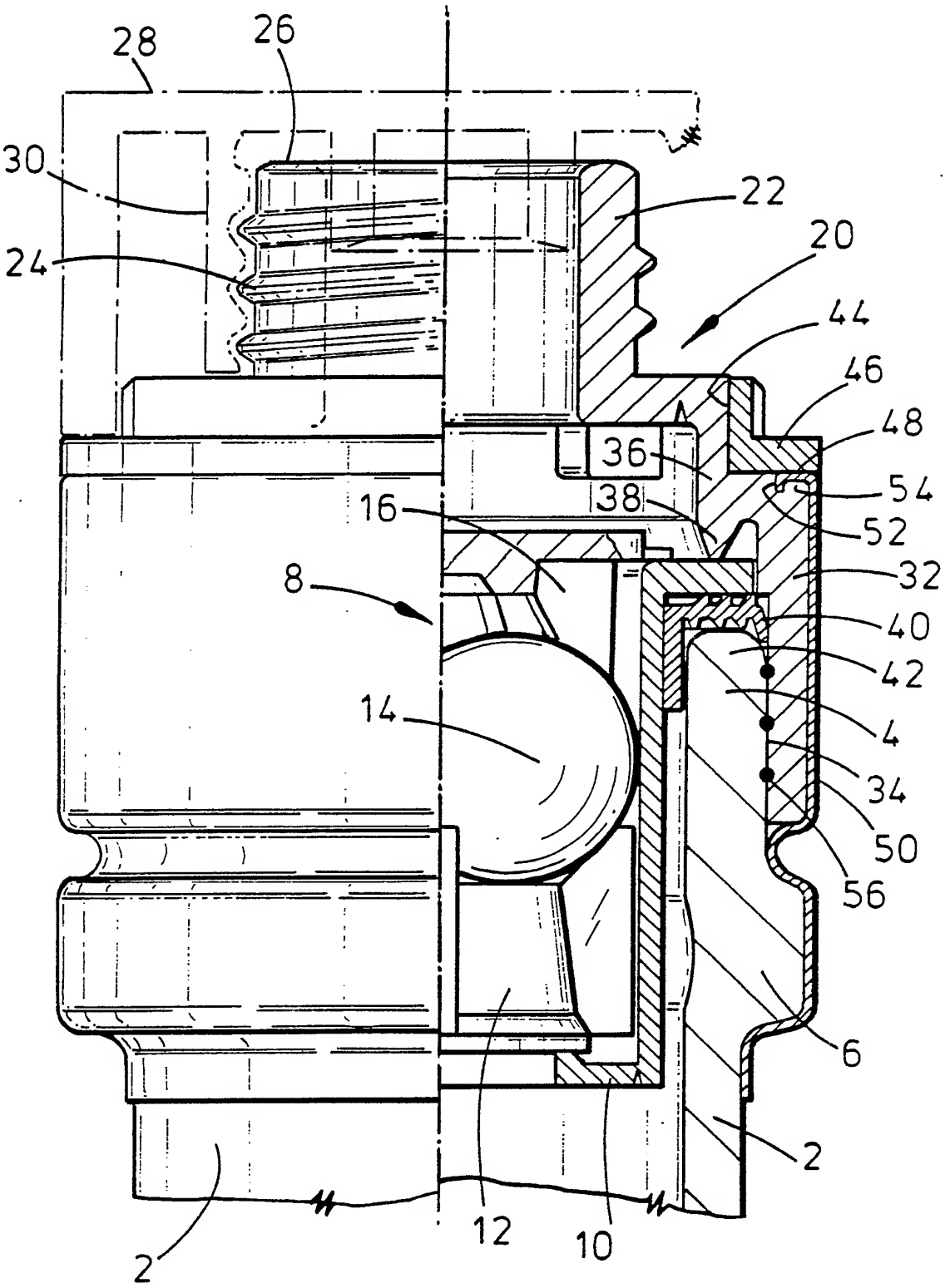
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NON-REFILLABLE DEVICE

The present invention is concerned with improvements in or relating to a non-refillable device adapted to be fitted to a bottle neck portion.

The invention provides a non-refillable security device for use in the prevention of tampering with liquid containers, said device comprising a liquid container having an outlet in the form of a tubular neck portion, a one-way valve device received within the tubular neck portion, wherein the valve device is supported with respect to the neck portion so as to embrace an external surface of the tubular neck portion and to hold the valve device captive within the neck portion, there being provided an outlet means including an extension portion adapted to receive a closure cap and a sleeve portion adapted to surround said tubular neck portion, and a cowl adapted in use to embrace and conform to the contours of the neck portion and of the sleeve portion, marginal portions of said cowl being permanently secured to the sleeve portion.

Advantageously, said marginal portions of the cowl may be received in a recess of the sleeve portion and may be bonded thereto for example by welding. Preferably an annular securing means, for example in the form of a ring member, may be used to secure and reinforce the welded union.

Preferably, the sleeve portion arranged to surround the tubular neck portion is secured in position by means of a bonding technique, for example using an adhesive bond.

Advantageously, annular grooves are formed in confronting surfaces of the sleeve portion and of the tubular neck portion, to enable bonding material entering and solidifying in said grooves to form a band having a ridge or ridges with a larger external diameter than the internal diameter of the first part and a smaller internal diameter than the external diameter meter of the tubular neck portion.

In an example of a device according to the invention, a flange of the one-way valve device may be received between the outlet means and lip portions of the container together with a sealing washer adapted to be compressed to form a liquid-tight seal between the parts. Advantageously, the washer is maintained in its compressed condition by the presence of the adhesive bond between the sleeve position and the tubular neck position.

There will now be described an example of a device according to the invention. It will be understood that the description, which is to be read with reference to the drawing, is given by way of example only and not by way of limitation.

The drawing is a part-sectional view in side elevation of the device. A container 2 is provided with a tubular outlet in the form of a neck portion 4 having an external

annular ridge 6 formed therearound.

Received within the tubular neck portion 4 is a one-way valve device 8 comprising a valve seat member 10, a valve closure member 12, a weight 14 and an apertured weight-centring means 16. The device 8 is provided at its upper portion with an outwardly extending flange 18.

An outlet member 20 is provided on the neck portion 4 of the container and comprises an extension portion 22 provided with an external screw-thread 24 and a pouring lip 26. A closure cap 28 is provided (shown in chain-dotted lines) of which a skirt portion 30 engages the screw-thread 24. The member 20 also comprises an integral sleeve portion 32 which is arranged to surround the neck portion 4 and to be bonded thereto by an annular deposit of adhesive material 34 in a manner to be described below.

Arranged at an internal surface of the member 20 so as to depend from a shoulder portion 36 thereof is an annular ridge 38 which is adapted to contact the flange 18 of the valve device 8 so that, when in the assembled condition, the flange traps and compresses a sealing washer 40 against an upper edge portion 42 of the neck 4.

On the external surface of shoulder portion 36 is an annular groove 44 in which is received an annular securing means in the form of a retaining ring member 46 which is ultra-sonically welded to the member 20 so as to entrap an upper marginal portion 48 of a metal cowl 50. A groove 52

receives an edge of the marginal portion 48 for added security of fixing to the member 20 and a lip of the recess 44 is reduced at 54 to ensure that the marginal portion 48 is flush with the surface of the recess.

The device is assembled as follows:

The parts comprising the closure means are pre-assembled so that the one-way valve device 8 and the member 20 are correctly positioned, with the closure 28 in place, to entrap the sealing washer 40. A deposit of the adhesive 34 is applied to the neck portion 4 and a capping machine (not shown) applies a compression force axially of the neck portion 4 so as to force the sleeve portion 32 of the member 20 over the neck portion 4. Confirming surfaces of the sleeve portion 32 and the neck portion 4 and provided with grooves into which the adhesive material flows to form a band of bonding material having ribs 56. The cowl 50 is then crimped so as to conform with the contours of the external annular ridge 6 on the neck portion 4. In this way, the assembly cannot be dismantled by tampering without damage being caused of a kind that is evident to the user of the damaged container. The user would then be aware of a risk that the container, such as a bottle, has been re-filled with a replacement quantity of liquid, the characteristics and quality of which may differ from that of the original contents.

Various modifications may be made within the scope of the invention as defined in the following claims.

CLAIMS

1. A non-refillable security device for use in the prevention of tampering with liquid containers, said device comprising a liquid container having an outlet in the form of a tubular neck portion, a one-way valve device received within the tubular neck portion, wherein the valve device is supported with respect to the neck portion so as to embrace an external surface of the tubular neck portion and to hold the valve device captive within the neck portion, there being provided an outlet means including an extension portion adapted to receive a closure cap and a sleeve portion adapted to surround said tubular neck portion, and a cowl adapted in use to embrace and conform to the contours of the neck portion and of the sleeve portion, marginal portions of said cowl being permanently secured to the sleeve portion.

2. A device as claimed in claim 1, wherein marginal portions of the cowl are received in a recess of the sleeve portion.

3. A device as claimed in either one of the claims 1 and 2, wherein marginal portions of the cowl are secured to the sleeve portion by means of a welding technique.

4. A device as claimed in any one of the preceding claims wherein an annular security member is provided in the region of the sleeve portion to which the cowl is secured.

5. A device as claimed in claim 1 wherein the sleeve portion is secured to the tubular neck portion of the container outlet by means of a bonding technique.

6. A device as claimed in claim 5, wherein the sleeve portion is secured to the tubular neck portion by an adhesive bond.

7. A device as claimed in claim 6, wherein annular grooves are formed in confronting surfaces of the sleeve portion and of the tubular neck portion to enable adhesive bonding material to form a band having a ridge or ridges with a larger external diameter than the internal diameter of the first part and a smaller internal diameter than the external diameter of the tubular neck portion.

8. A device as claimed in any one of the claims 5 to 7, wherein a compressible sealing member is received between the outlet means and tubular neck portion, so as to be maintained in a permanently compressed condition in use by the presence of a securely bonded zone between the sleeve

portion and said neck portion, and thus to ensure a liquid-tight seal.

9. A device as claimed in any one of the preceding claims wherein the one-way valve device is provided with an external flange, said flange being received between the tubular neck portion and the sleeve portion of the outlet means.

10. A non-refillable security device for use in the prevention of tampering with liquid containers, constructed and arranged as hereinbefore described with reference to and as shown in the drawing.

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ABSTRACT:

CHG DATE=19990617 STATUS=O> A non-refillable device comprises a one-way valve device 8 received

in a tubular neck portion 4 of a container 2. An outlet pouring member 20 is provided on the neck portion 4, which comprises a pouring lip 26 to be closed by a cap 28. The member 20 also comprises a sleeve portion 32 which is bonded to the neck portion 4 so as to compress a sealing washer 40 and afford a liquid-tight seal. A metal cowl 50 is provided to conform to the contours of the sleeve portion 32 and to engage the container 2. Margins 48 of the cowl are secured to the member 2 by an ultra-sonic welding technique and the security of the weld is enhanced by the presence of a retaining ring 46. The container and sleeve are provided with grooves so adhesive forms ribs 6. The device is pre-assembled, the lower edge of the cowl being crimped after application to the container neck to conform with the ridge 6. □